REMARKS

Claims 1-43 are rejected under 35 U.S.C.102(b) as being anticipated by Hara et al. (U.S. 6,046,790).

1. Correction of the specification:

The specification is corrected due to typographical errors and supports for the correction can be found in paragraphs [0027]-[0029] of the present application. No new matter is entered. Acceptance of the corrected specification is therefore politely requested.

2. Rejections of claims 1 under 35 U.S.C. 102(b):

Claim 1 is rejected under 35 U.S.C. 102(b), for reasons of record that can be found on page 2 in the Office action identified above, which is part of paper no.09252003.

Response:

The claim 1 is repeated below, in clean format, for reference:

"1. A liquid crystal display panel comprising an upper substrate, a lower substrate, and a plurality of pixels located between the upper substrate and the lower substrate, each of the pixels having at least a compensating capacitor for providing an approximately identical feed-through voltage for each of the pixels."

As described in claim 1 and Fig.4 of the present application, the compensating capacitor C" (i.e. C'_A, C'_B, and C'_C in Fig. 4 of the present application) is

utilized for providing an approximat ly identical feed-through voltage for each of the pixels. Further, the feed-through voltage (V_{FD}) is represented by: $V_{FD}=[(C_{GS}+C)/(C_{LC}+C_{SC})]*.V_G$ (equation (3)), wherein C_{LC} is the capacitance of the liquid crystal cell (LC), C_{SC} is the capacitance of the storage capacitor (SC), C_{GS} is the capacitance between the source electrode and the gate electrode of the thin film transistor, $.V_G$ is the amplitude of a pulse voltage applied to the gate electrode, and C (equation (3)) represents the capacitance of the compensating capacitor C". That is, the present application is to add a compensating capacitor C" to provide each pixel to have substantially the same level of feed-through voltage, thus reducing a flicker effect of an LCD panel.

The Examiner rejected the claim 1 under U.S.C. 102(b) as anticipated by Hara et al. Hara et al. disclose that the capacitance component 26 is a capacitor of an alignment film of a liquid crystal molecule (Fig.3, & col. 24, lines 47-49). Further, Hara et al. disclose that a high quality display of flicker-free can be realized as long as a liquid crystal display device employs liquid crystal having a spontaneous polarization satisfying the equation (11) (col.19, lines 58-61). As further described in equation (11-1) of Hara's teaching, the feed-through voltage ($.V_P$) is represented by: $.V_P = C_{GS}.V_G/(C_{cell}+C_S)$, wherein C_{cell} consists of the capacitance caused by the spontaneous polarization of the liquid crystal having a spontaneous polarization and the capacitance of alignment layers (i.e. the capacitance component 26),

C_{gs} is a parasitic capacitanc b twe n gat and pixel electrodes, C_s is a storage capacitance, and .V_G is gate voltage difference. The capacitance component 26 is a capacitor of an alignment film and is included in C_{cell} that is one of the denominators in the equation (11-1) of Hara.

Thus, the capacitance component 26 of Hara et al. should be distinct from the compensating capacitor C' that is one of the numerators in the equation (3) of the present application. That is, Hara et al. do not utilize the capacitance component 26 to reduce the flicker effect, but utilize liquid crystal having a spontaneous polarization, not a compensating capacitor as claimed, satisfying the equation (11) to reduce the flicker effect.

Therefore, Hara et al. fails to disclose each of the pixels having at least a compensating capacitor for providing an approximately identical feed-through voltage for each of the pixels. Thus, claim 1 is patentably distinguishable from Hara et al.

3. Rejections of claim 3 under 35 U.S.C. 102(b):

Claim 3 is rejected under 35 U.S.C. 102(b), for reasons of record that can be found on page 3 in the Office action identified above, which is part of paper no.09252003.

Response:

As described in claim 3 and Fig.4 of the present application, a capacitance of each of the compensating

capacitors C" (i. . C'_A, C'_B, and C'_C) is increased when a distance between the pixels (i.e. A, B, and C) and the first input end of the second scanning line GL_0 is increased. That is, a capacitance of the compensating capacitor of the present application is varied with its position.

In the rejection of claim 3, the Examiner considers the spontaneous polarization of Hara et al. to be equivalent to the capacitance of the compensating capacitor of the present application. However, the spontaneous polarization P_S disclosed in Hara et al. is a characteristic of several liquid crystal materials, such as ferroelectric liquid crystal or anti-ferroelectric liquid crystal (col.1, lines 30-37 of Hara et al.), and the spontaneous polarization P_S is varied when the driven voltage is changed (col. 35, lines 50-62). Therefore, Hara et al. fails to disclose the capacitance of each of the compensating capacitors being increased when a distance between the pixels and the first input end of the second scanning line is increased. Reconsideration of claim 3 is respectfully requested.

4. Rejections of claims 6, 14 and 20 under 35 U.S.C. 102(b):

Claims 6, 14 and 20 are rejected under 35 U.S.C. 102(b), for reasons of record that can be found on page 4 in the Office action identified above, which is part of paper no.09252003.

Response:

As described in claim 6 and Fig.5A of the present application, an area of each of the first overlapping regions (i.e. 70a, 70b, and 70c) is increased as a distance between the first input end of the first scanning line 52 and the pixel (A, B, or C) corresponding to each of the first overlapping regions (i.e. 70a, 70b, and 70c) is increased. Thus, when a distance between the pixel C and the first input end is larger than that between the pixel B and the first input end, which is larger than a distance between the pixel A and the first input end, an area of the first overlapping region 70c is larger than that of the first overlapping region 70b, which is larger than that of the first overlapping region 70a.

Additionally, Hara et al. disclose the parameters utilized in their first embodiment, such as the size of one pixel, an area A of pixel electrode for one pixel, a cell gap, and a voltage E (col.23, lines 47-54). Besides, Hara et al. disclose that a liquid crystal display device that has data satisfying the condition of the equation (1) will have a contrast value of 30 or more (col.23, lines 55-67). Furthermore, Hara et al. teach the relationship between a capacitance component (C_{hx}) and a spontaneous polarization P_s (col.24, lines 55-67), and Hara et al. further disclose that the spontaneous polarization P_s is varied when three kinds of liquid crystal materials are employed (col.32, lines 3-34).

However, the above passages of Hara et al., cited by the Examiner to reject claim 6, neither teach nor

disclose that an area of each of the first ov rlapping regions is increased as a distance between the first input end of the first scanning line and the pixel corresponding to each of the first overlapping regions is increased. Hara et al. fail to disclosure the feature as recited in claim 6. Reconsideration of claim 6 is respectfully requested.

Claims 14 and 20 contain similar features of claim 6. Therefore, reconsideration of claims 14 and 20 is politely requested.

5. Rejections of claims 8, 16, 28 and 29 under 35 U.S.C. 102(b) :

Claims 8, 16, 28 and 29 are rejected under 35 U.S.C. 102(b), for reasons of record that can be found on page 4 in the Office action identified above, which is part of paper no.09252003.

Response:

As described in claim 8 and Fig.5A of the present application, an area of each of the second overlapping regions (i.e. 68a, 68b, and 68c) is increased as a distance between the first input end of the first scanning line 52 and the pixel (A, B, or C) corresponding to each of the second overlapping regions (i.e. 68a, 68b, and 68c) is increased. That is, when a distance between the pixel C and the first input end is larger than that between the pixel B and the first input end, which is larger than a distance between the pixel A and the first input end, an area of the overlapping region 68c is larger than that of

th overlapping region 68b, which is larg r than that of the overlapping region 68a.

Additionally, Hara et al. disclose the parameters applied in their sixth embodiment, such as a driving voltage, an electrostatic capacitance C_{LC}, the size of the pixel electrode, the distance between electrodes, and so on (col.31, lines 58-67; col.32, lines 1-11). Furthermore, Hara et al. disclose that the spontaneous polarization is varied when three kinds of liquid crystal materials are employed (col.32, lines 12-34).

Nevertheless, Hara et al. neither teach nor disclose that an area of each of the second overlapping regions is increased as a distance between the first input end of the first scanning line and the pixel corresponding to each of the second overlapping regions is increased. Therefore, the applicants believe that claim 8 is patentable over the teachings of the Hara's patent. For the same reason set forth above, Claims 16, 28 and 29 should be distinguished from Hara et al. and therefore, the allowance of the claims is respectfully requested.

6. Rejections of claims 9 and 17 under 35 U.S.C. 102(b):

Claims 9 and 17 are rejected under 35 U.S.C. 102(b), for reasons of record that can be found on page 4 in the Office action identified above, which is part of paper no.09252003.

Response:

As described in claim 9 and Fig.4 of the present

application, a capacitance of ach of th storage capacitors (i.e. SC_A, SC_B, and SC_C) is reduced as a distance between each of the storage capacitors (i.e. SC_A, SC_B, and SC_C) and the first input end of the second scanning line GL_i is increased., when a distance between the pixel C and the first input end is larger than that between the pixel B and the first input end, which is larger than that between the pixel A and the first input end, a capacitance of the storage capacitor SC_C is smaller than that of the storage capacitor SC_B, which is smaller than that of the storage capacitor SC_A.

Hara et al. employ four kinds of numerical values of the storage capacitance 12 respectively in four different liquid crystal display devices (col.23, lines 42-45; col. 25, lines 5+). However, the present application employs a plurality of numerical values of the storage capacitance in one liquid crystal display device. Accordingly, the applicants believe that Hara et al. fail to teach the feature recited in claim 9 and respectfully request reconsideration of claim 9.

Claim 17 has similar features as claim 9 and is patentable for the same reason set forth. Therefore, reconsideration of claim 17 is respectfully requested.

7. Rejections of claims 2, 4, 5, 7, 10-13, and 15 under 35 U.S.C. 102(b) :

Claims 2, 4, 5, 7, 10-13, and 15 is rejected under 35 U.S.C. 102(b), for reasons of record that can be

found on pages 2-5 in the Office action identified above, which is part of paper no.09252003.

Response:

Claims 2, 4, 5, 7, 10, 11-13, and 15 are patentably distinguishable from Hara et al. by reason of their dependence upon claim 1, as well as its recitation. Hence, the Applicants submit that each of these dependent claims is not anticipated in view of Hara et al.

8. Rejections of claims 18-29 under 35 U.S.C. 102(b):

Claims 18-29 are rejected under 35 U.S.C. 102(b), for reasons of record that can be found on pages 1-7 in the Office action identified above, which is part of paper no.09252003.

Response:

The claim 18 is repeated below, in clean format, for reference:

"18. A liquid crystal display panel comprising:

a plurality of scanning lines;

a plurality of data lines; and

a plurality of pixels, each of the pixels having a pixel electrode, and a thin film transistor having a gate electrode connected to the corresponding scanning line, a drain electrode connected to the corresponding data line, and a source electrode connected to the pixel electrode, wherein a first overlapping region is formed by overlapping the pixel electrode over the corresponding scanning line;

wherein an area of each of the first overlapping

regions is increased gradually along a first direction."

As shown in claim 18 and Fig.5A of the present application, the overlapping regions 70a, 70b, and 70c are respectively formed by lapping the pixel electrodes 69a, 69b, and 69c over the scanning line 52, and the areas of the overlapping regions 70a, 70b, and 70c are increased sequentially along a first direction parallel to the scanning line 52.

However, Hara only discloses that the spontaneous polarization is varied when three kinds of liquid crystal materials are employed (col.32, lines 3-34 of Hara et al.), but Hara neither discloses nor teach that the areas of the overlapping regions between the pixel electrodes and the scanning line are increased sequentially along a first direction. Accordingly, claim 18 is patentable over the teachings of Hara el al.. Reconsideration of the claim 18 is respectfully requested.

Since claims 19-29 are dependent upon the claim 18, they should be patentably distinguishable from Hara et al for the same reason above. Reconsideration of claims 19-29 is hereby requested.

9. Rejections of claims 30-37 under 35 U.S.C. 102(b):

Claims 30-37 are rejected under 35 U.S.C. 102(b), for reasons of record that can be found on pages 7-9 in the Office action identified above, which is part of paper no.09252003.

Response:

Claims 30 and 34 have similar features of claims 1 and 18. Therefore, reconsideration of claims 30 and 34 is politely requested.

Since claims 31-33 and claims 35-37 are respectively dependent upon claim 30 and claim 34, they should be patentably distinguishable from Hara et al. Reconsideration of claims 31-33 and claims 35-37 is politely requested.

10. Rejections of claims 38-43 under 35 U.S.C. 102(b):

Claims 30-37 are rejected under 35 U.S.C. 102(b), for reasons of record that can be found on pages 9-10 in the Office action identified above, which is part of paper no.09252003.

Response:

The claim 38 is repeated below, in clean format, for reference:

"38. A liquid crystal display panel comprising:

a plurality of scanning lines for transmitting scanning signals from a scanning line driving circuit;

a plurality of data lines for transmitting image signals from a data line driving circuit; and

a plurality of pixels, each of the pixels comprising:

a liquid crystal capacitor;

a thin film transistor electrically connected to the corresponding scanning line,

the corresponding data line, and the liquid crystal capacitor; and

a compensating capacitor electrically connected between the liquid crystal capacitor and the corresponding scanning line, being connected to the thin film transistor, for providing an approximately identical feed-through voltage for each of the pixels."

As described in claim 38 and Fig.4 of the present application, the compensating capacitor C" (i.e. C'_A, C'_B, or C'_C) is electrically connected **between the liquid crystal capacitor LC and the corresponding scanning line GL_0**.

As to the rejection of claim 38, the Examiner considers the present application's compensating capacitor C" to be equivalent to the capacitance component 26 disclosed in Hara et al. However, the capacitance component 26 disclosed in Hara et al. is a capacitor of an alignment film of a liquid crystal molecule and is electrically connected **between the pixel electrode 11 and a capacitance component (C_{LC}) 23** corresponding to ferroelectricity of a liquid crystal material (Fig.3, & col. 24, lines 47-49 of Hara et al.). However, the compensating capacitor of the present application is electrically connected between **the liquid crystal capacitor LC and the corresponding scanning line.** Therefore, Hara et al. fail to disclosure or suggest the compensating capacitor being electrically connected between the liquid crystal capacitor LC and the corresponding scanning line.

Furthermore, Hara et al. neither disclose nor suggest providing a compensating capacitor that is electrically connected between a liquid crystal capacitor and a scanning line for providing an approximately identical feed-through voltage for each of the pixels. Reconsideration of claim 38 is respectfully requested.

Additionally, claims 39-43 are patentably distinguishable from Hara et al. by reason of dependence upon claim 1, as well as its recitation. Hence, the Applicants submit that each of these dependent claims is not anticipated in view of Hara et al.

Accordingly, all claims in the present application, namely, claims 1-43 are now in condition for allowance. Early and favorable indication of allowance is courteously solicited.

Sincerely,

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